

IN THE CLAIMS:

Please amend claims 1 and 4 as follows:

1. (currently amended): A magnetic circuit (1) comprising an electrical coil (2) and a magnetic core (3), for use as a current sensor, wherein the coil (2) comprises a conducting wire (6), an end plate (4) and a connector (5), the connector comprising a housing and terminals for electrical connection of the electrical coil to an electronic device, the end plate and connector being arranged at respective first and second ends of the coil (2), the coil including the end plate and connector being mounted on the magnetic core (3) formed of a single tore-shaped magnetic wire with an air-gap, whereby the coil, end plate and connector comprise a central cavity in which the magnetic core is inserted.

2. (original): The magnetic circuit with coil according to claim 1, wherein an inner cavity (7) of the coil (2) has a slightly conical shape in a direction extending from the first end to the second end of the coil.

3. (previously presented): The magnetic circuit with coil according to claim 2, wherein an angle α of the cone has a value $\tan \alpha$ between 0.001 and 0.01.

4. (currently amended): A process for making the magnetic circuit with coil ~~according to claim 1~~, wherein the coil (2) comprises a conducting wire (6), an end plate (4) and a connector (5), the connector comprising a housing and terminals for electrical connection of the electrical coil to an electronic device, the end plate and connector being arranged at respective first and second ends of the coil (2), the coil including the end plate and connector being mounted on the magnetic core (3) formed of a tore-shaped magnetic wire with an air-gap, whereby the coil, end plate and connector comprise a central cavity in which the magnetic core is inserted, comprising the steps of making said coil (2) by winding a conducting wire (6) on a mandrel (12) having first and second ends, the first end being configured in smaller diameter than the second end, such that they form a

conical shape in a direction of insertion of the coil on the magnetic core; subsequently inserting the coil (2) on the magnetic core (3), said magnetic core comprising a magnetic material in a form of an open spire having ends (16, 16'), said open spire being formed before providing the magnetic material with specified magnetic properties; and then by deforming the ends (16, 16') of the magnetic core in a substantially orthogonal direction (O) to a plane of the magnetic circuit in order to move said ends closer together.

5. (previously presented): The process according to claim 4, wherein the coil (2) is inserted on the magnetic core (3) during removal of the mandrel (12).

6. (previously presented): The process according to claim 5, wherein one of said ends (16) of the open spire of the magnetic core (3) is inserted in a cavity (15) at a free end (13) of the mandrel (12) in order to facilitate insertion of the coil (2) on the magnetic core (3).

7. (previously presented): The process according to claim 4, wherein, before or during the winding operation, an end plate (4) is placed on the mandrel (12) to form an insertion end (19) of the coil (2), this end being the first to be inserted on the magnetic core (3).

8. (original): The magnetic circuit with coil according to claim 1, wherein the end plate comprises a guide portion (11) around which a portion of the coil is wound.

9. (original): The magnetic circuit with coil according to claim 1, wherein the connector housing comprises a guide portion around which a portion of the coil is wound.